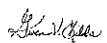


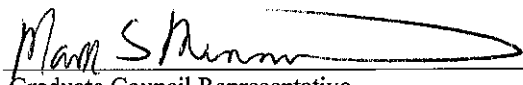
UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES
GRADUATE FACULTY APPLICATION

1. Name: Sang-Hun Lee
2. UAMS Graduate Program Sponsor: Neurobiology and Developmental Sciences Major field: Neuroscience
3. Present UAMS academic title or administrative position: Assistant Professor
- Date appointed this rank/position: 8/1/2015 Employed by: Dept. of Neurology

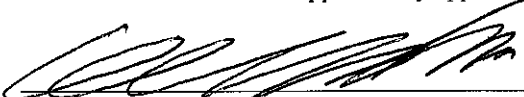
4. Comments of Department Chair/Head or Program Director including: evidence of scholarly development, effectiveness as a teacher, quality of publications and reallocation of duties if this application is approved.

Dr. Lee is a Secondary Faculty in the Department of Neurobiology and Developmental Sciences. He joined the Department in 2015. During the past year, Dr. Lee has successfully set up his laboratory and wrote a Pilot study grant for the Center for Translational Neurosciences, which was funded in May, 2016 for a year. We anticipate that these funds along with start-up funds from Neurology will allow his laboratory to build strength and eventually obtain an R01-equivalent grant to fully support his independent research program. His publications are excellent and show scholarship. As he is not primary in our department, I do not see his duties reassigned. He will become active in the graduate program, providing lectures and hosting students who rotate through his laboratory. His funding sources are sufficient for him to be able to actively host students and eventually become their advisor. He is active in our departmental activities and will be an asset to the Neuroscience Interdisciplinary program. He will become an active part of groups that re-evaluate the curriculum and upgrade courses and add new courses.


Digitally signed by Gwen Childs Jones, Ph.D.
DN: cn=Gwen Childs Jones, Ph.D., o, ou,
email=childsgwen@uams.edu, c=US
Date: 2016.07.13 11:11:09 -0500
7/13/2016
Date


8.3.16
Graduate Council Representative

I have read the comments of my Department Chair/Head or Program Director and I do, (do not) wish to supply additional information in support of my application.


Applicant's Signature
7/11/2016
Date

Approvals

Chair, Graduate Faculty Committee
Date

Chair, Graduate Council
Date

Dean of the Graduate School
Date

5. **List your planned involvement in graduate education (courses, theses, dissertations):**

- Give two lectures per year for a graduate course on epilepsy (Cellular and Developmental Neurobiology; course director, Dr. Abdallar Hayar).
- Take lab rotation students and train them in neuroscience research.
- Recruit one PhD student to my lab this coming year and train the student for his/her PhD research.
- Serve as dissertation and/or thesis committee when requested.

6. **Briefly summarize your experience in graduate-level classroom teaching:**

I taught 3 PhD/MD and 2 PhD students in the previous advisors' labs (Dr. Ivan Soltesz at University of California at Irvine, and Dr. Charles L. Cox at University of Illinois at Urbana-Champaign). During their PhD trainings, I taught them in multiple aspects, including training in basic neuroscience knowledge, experimental design, experiment methods, data analyses, and data interpretation. In addition, I taught undergraduate students in two courses (i.e., Biology Lab, and Biochemistry Lab) at Inha University, South Korea, for two semesters. My major roles of teaching at that University were to give lectures on Biology and Biochemistry, direct/supervise the students' experiments, and grade their lab reports. I also taught undergraduate students in a TA office as a teaching assistant of two courses (i.e., Systems and Integrative Physiology, and Physiology Lab) at University of Illinois at Urbana-Champaign, for two semesters. My major responsibilities were to answer the students' questions about the contents which they learned from their classroom lectures, and grade tests.

7. **Briefly summarize your experience in research and student research mentoring:**

I have 18 years experience in neuroscience research, and I have produced 18 research articles and 2 review articles. They were published in highly respected neuroscience journals (e.g., Neuron, Nature Neuroscience, Nature Reviews Neuroscience, and Journal of Neuroscience). I have integrated in vitro and in vivo electrophysiological, optogenetic, imaging, anatomical, molecular, and pharmacological techniques. Using the interdisciplinary approach, I have studied the functional organization of GABAergic interneurons, and their roles in epilepsy and cognitive deficits associated with epilepsy as well as other brain disorders, using the mouse as a model. I discovered nonuniform selectivity of postsynaptic targets by interneurons (Lee et al., 2014, Neuron), regulation of GABA release by endocannabinoids (Lee et al., 2010, 2015, Journal of Neuroscience; Lee and Soltesz, 2011, Journal of Physiology), the nanoscale positions and quantities of synaptic proteins in identified cell types (Dudok et al., 2015, Nature Neuroscience), a new regulatory mechanism of intracellular chloride homeostasis (Foldy, Lee, Morgan, and Soltesz, 2010, Nature Neuroscience), and cell type-specific plasticity of neurotransmission by energetic solar particles (Lee et al., 2016, PNAS, under review). In previous labs and my lab, I have extensive experience teaching students and scientists at all levels, from high school students to visiting professors, one of whom have been awarded prestigious prizes and fellowships based on the work she did under my guidance (see my attached CV).

8. **Attach Curriculum Vita** showing educational background (including institutions attended, degrees awarded and dates), honors or awards received, scholarly or professional organization affiliations, teaching experience (give school, dates and advanced and graduate subjects taught), including student theses and/or dissertations supervised. Cite publications and research in progress.

Sang-Hun Lee
Curriculum vitae

(Date prepared: July 10, 2016)

Institutional Address

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4301 W. Markam St. #585, Little Rock, AR 72205
Phone: 501-686-7379 (office), 501-686-5523 (lab)
E-mail: sanghunlee@uams.edu

Education

1997 B.S., Biology, Inha University, Incheon, South Korea
1999 M.S., Biology, Inha University, Incheon, South Korea
2005 Ph.D., Molecular and Integrative Physiology, University of Illinois at Urbana-Champaign, IL, USA

Military Service

1992-1994 Korean Army, Sergeant (Squad Leader)

Employment History

1997-1999 Teaching Assistant, Department of Biology, Inha University, Incheon, South Korea
2006-2008 Postdoctoral Fellow, Department of Psychology, University of Illinois at Urbana-Champaign, Urbana, IL (advisors: Drs. Joseph G. Malpeli and Charles L. Cox)
2008-2010 Postdoctoral Fellow, Department of Anatomy and Neurobiology, University of California, Irvine, CA (advisor: Dr. Ivan Soltesz)
2010-2015 Project Scientist, Department of Anatomy and Neurobiology, University of California, Irvine, CA (advisor: Dr. Ivan Soltesz)
2013-2015 Project Scientist, NASA Specialized Center of Research (NSCOR), University of California, Irvine, CA (advisors: Drs. Charles L. Limoli and Ivan Soltesz)
2015-present Assistant Professor, Department of Neurology, University of Arkansas for Medical Sciences, Little Rock, AR
2015-present Secondary Assistant Professor, Department of Neurobiology and Developmental Sciences, University of Arkansas for Medical Sciences, Little Rock, AR

Awards

1995 Merit-based scholarship, Department of Biology, Inha University, Incheon, South Korea
2003 Travel grant, Department of Molecular and Integrative Physiology, University of Illinois at Urbana-Champaign to attend the Society for Neuroscience 33th Annual Meeting
2004 Travel grant, Graduate School of University of Illinois at Urbana-Champaign to attend the Society for Neuroscience 34th Annual Meeting
2006 Best poster presentation by a postdoctoral fellow for the MIP retreat, Department of Molecular and Integrative Physiology, University of Illinois at Urbana-Champaign
2009 Postdoctoral research fellowship (EFA-45197), Epilepsy Foundation of America

Professional Societies

2002-present Member, Society for Neuroscience
 2015 Associate member, Radiation Research Society
 2016-present Member, Korean-American Scientists and Engineers Association

Teaching and Mentoring

Formal teaching:

<u>Dates</u>	<u>Course Title</u>	<u>Role</u>	<u>School</u>
1997	Biology Lab	TA	Inha University, South Korea
1998	Biochemistry Lab	TA	Inha University, South Korea
2003	Systems and Integrative Physiology	TA	University of Illinois at Urbana-Champaign, IL
2004	Physiology Lab	TA	University of Illinois at Urbana-Champaign, IL

Undergraduate students:

2012 Oscar Rodriguez (Minority Science Program, undergraduate student), UC Irvine
 2012-2015 Michelle Oberoi (Minority Science Program, undergraduate student), UC Irvine

Postdoctoral fellows:

2015-present Young-Jin Kang, UAMS

High school students:

2012 Avneesh Sharma (Sunny Hills High School, Fullerton, CA), UC Irvine
 2016-present David Davila (Episcopal Collegiate School, Little Rock, AR), UAMS

Student/Trainee Awards

2012 Poster presentation winner, Awardee Name: Michelle Oberoi (undergraduate student). Annual Biomedical Research Conference for Minority Students, San Jose, CA, November 2012. An award based on the work under my guidance.

2013 Poster presentation winner, Awardee Name: Michelle Oberoi (undergraduate student). Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, San Antonio, TX, October 2013. An award based on the work under my guidance.

2013 First place poster presentation among graduate and undergraduate presenters within Brain and Behavior division, Awardee Name: Michelle Oberoi (undergraduate student). American Association for the Advancement of Science (AAAS) Annual Meeting, Boston, MA, February 2013. An award based on the work under my guidance.

Invited Talks

2008 Department of Biology, Inha University, South Korea
 2008 Interdisciplinary Program in Neuroscience, Seoul National University, South Korea
 2008 Department of Pharmacology, Hallym University, South Korea
 2015 Department of Neurology, University of Arkansas for Medical Sciences, USA
 2015 Department of Neurobiology and Developmental Sciences, University of Arkansas for Medical Sciences, USA

Grant Support

5/1/2016- Pilot study grant from the Center for Translational Neuroscience at UAMS, funded by
 4/30/2017 National Institutes of Health NIGMS IDeA Award (P30GM110702)
 Principal Investigator: S.H. Lee

Title: Intrinsic gamma oscillations of hippocampal GABAergic interneurons
\$50,000

Publications

1. **Lee S.H.**, Yang S.C., Park J.K., Jung M.W., and Lee C.J. (2000) Reduction of electrically evoked neural activity by ginseng saponin in rat hippocampal slices, Biological & Pharmaceutical Bulletin 23(4): 411-414
2. Yang S.C, **Lee S.H.**, Park J.K., Jung M.W., and Lee C.J. (2000) Ginsenoside Rb₁ reduces spontaneous bursting activity in thalamocortical slices of the rat, Journal of Ginseng Research 24(3): 134-137.
3. **Lee S.H.** and Cox C.L. (2003) Vasoactive intestinal peptide selectively depolarizes thalamic relay neurons and attenuates intrathalamic rhythmic activity, Journal of Neurophysiology 90: 1224-1234.
4. **Lee S.H.** and Cox C.L. (2006) Excitatory actions of vasoactive intestinal peptide on mouse thalamocortical neurons are mediated by VPAC₂ receptors, Journal of Neurophysiology 96: 858-871.
5. **Lee S.H.**, Govindaiah G., and Cox C.L. (2007) Heterogeneity of firing properties among rat thalamic reticular nucleus neurons, Journal of Physiology 582: 195-208.
6. **Lee S.H.** and Cox C.L. (2008) Excitatory actions of peptide histidine isoleucine on thalamic relay neurons, Neuropharmacology 55: 1329-1339.
7. Lee Y., Park E., **Lee S.H.**, Kim Y.W. and Lee C.J. (2009) Ginsenoside Rg₁ reduced spontaneous epileptiform discharges and behavioral seizure in the zebrafish, Journal of Ginseng Research 33(1): 48-54.
8. **Lee S.H.***, Govindaiah G.*, and Cox C.L. (2010) Selective excitatory actions of DNQX and CNQX in rat thalamic neurons, Journal of Neurophysiology 103: 1728-1734. *These authors contributed equally to this work.
9. **Lee S.H.**, Földy C., and Soltesz I. (2010) Distinct endocannabinoid control of GABA release at perisomatic and dendritic synapses in the hippocampus, Journal of Neuroscience 30: 7993-8000.
10. Földy C., **Lee S.H.**, Morgan R.J., and Soltesz I. (2010) Regulation of fast-spiking basket cell synapses by the chloride channel ClC2, Nature Neuroscience 13: 1047-1049.
• Highlighted in News and Views, Nature Neuroscience, 13: 1043-1044.
11. **Lee S.H.** and Soltesz I. (2011) Requirement for CB₁ but not GABA_B receptors in the cholecystokinin mediated inhibition of GABA release from cholecystokinin expressing basket cells, Journal of Physiology 589:891-902
12. Krook-Magnuson E., Luu L., **Lee S.H.**, Varga C., and Soltesz I. (2011) Ivy and neurogliaform interneurons are a major target of μ opioid receptor modulation, Journal of Neuroscience 31:14861-14870.

13. Krook-Magnuson E., Varga C., **Lee S.H.**, and Soltesz I. (2012) New dimensions of interneuronal specialization unmasked by principal cell heterogeneity, Trends in Neurosciences 35: 175-184.
14. Ma R., Cui H., **Lee S.H.**, Anastasio T.J., and Malpel J.G. (2013) Predictive encoding of moving target trajectory by neurons in the parabigeminal nucleus, Journal of Neurophysiology 109: 2029-2043.
15. **Lee S.H.***, Marchionni I.*, Bezaire M., Varga C., Danielson N., Lovett-Barron M., Losonczy A., and Soltesz, I. (2014) Parvalbumin-positive basket cells differentiate among hippocampal pyramidal cells, Neuron 82: 1129-1244. *These authors contributed equally to this work.
 - Evaluated by Faculty of 1000: <http://f1000.com/prime/718391812>
 - Highlighted with a video abstract: <https://www.youtube.com/watch?v=KiVdY6XZAL0>
16. Dudok B., Barna L., Szabó S., Szabadits E., Pintér B., Woodhams S.G., Henstridge C.M., Balla G.Y., Nyilas R., Varga C., **Lee S.H.**, and et al. (2015) Cell type-specific STORM superresolution imaging reveals nanoscale organization of cannabinoid signaling at hippocampal GABAergic synapses, Nature Neuroscience 18: 75-86.
 - Evaluated by Faculty of 1000: <http://f1000.com/prime/725267801>
17. Soltesz I., Alger B., Kano M., **Lee S.H.**, Lovinger D., Ohno-Shosaku T., and Watanabe M. (2015) Weeding out bad waves: Towards selective cannabinoid circuit control, Nature Reviews Neuroscience 16: 264-277.
 - Evaluated by Faculty of 1000: <http://f1000.com/prime/725443754>
18. **Lee S.H.***, Ledri M.*, Tóth B.*, Marchionni I., Henstridge C. M., Dudok B., Kenesei K., Barna L., Szabó S.I., Renkecz T., Oberoi M., Watanabe M., Limoli C.L., Horvai G., Soltesz I., and Katona I. (2015) Multiple forms of endocannabinoid and endovanilloid signaling regulate the tonic control of GABA release, Journal of Neuroscience 35: 10039-10057. *These authors contributed equally to this work.
 - Evaluated by Faculty of 1000: <http://f1000.com/prime/725624269>
19. Armstrong C., Wang J., Lee S.Y., Broderick J., Bezaire M., **Lee S.H.**, and Soltesz I. (2016) Target-selectivity of parvalbumin-positive interneurons in layer II of medial entorhinal cortex in normal and epileptic animals, Hippocampus 26:779-793.
20. Maroso M., Szabo G.G., Kim H.K., Alexander A., Bui A., **Lee S.H.**, Lutz B., and Soltesz I. (2016) Cannabinoid control of learning and memory through HCN channels, Neuron 89: 1059-1073.
 - Highlighted in Previews, Neuron, 89: 889-891.
21. **Lee S.H.***, Dudok B, Parihar V.K., Jung K.M., Miklós Z., Kang Y.J., Maroso M., Alexander A.L., Nelson G.A., Piomelli D., Katona I., Limoli C.L., and Soltesz I. (2016) Energetic solar particles cause cell type-specific plasticity of neurotransmission, PNAS, under review. *Corresponding author.